UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/815,317	04/01/2004	Phil Van Dyke	VP127	7237

20178   7590   01/04/2008
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EXAMINER
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ART UNIT	PAPER NUMBER
2629	

MAIL DATE	DELIVERY MODE
01/04/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>19 November 2007</u>.

2a)☒ This action is **FINAL.**   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-11 and 13-28</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-6,9,10 and 15-25</u> is/are rejected.

7)☒ Claim(s) <u>7,8,11,13,14,26 and 28</u> is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Response to Arguments

1.   Applicant's arguments filed on 11/19/2007 have been fully considered but they are not

persuasive.

Applicant argues that the cited reference, Worley, III (USPN 6326980) does not teach "a

mode control circuit to substitute for a selected subset of the set of image data words the image

data words from one or more contiguous pixels and to provide the resulting modified set of

image data words to the output port to be made available to the electro-optical image display".

Worley, III teaches data planarizer 908 receives the compound data, via compound data

bus 936, in 10-bit compound data words, each 10-bits (Pr[0-9]) corresponding to a gray scale

value to be written to a particular pixel (r) of micro-LCD 928, such that the data planarizer 908

accumulates the 10-bit gray scale data for 32 pixels and reformats the data into 32-bit data

words, each 32-bit word containing one bit from each of the group of 32 10-bit compound data

words, col. 9, lines 20-24, note that the driver circuit 900 transfers the planarized compound data

words, via 32-bit data output bus 924, along with control signals, via LCD control bus 926, to a

micro-LCD 928 (Fig. 9 (908), col. 9, lines 43-50). Note that reformatting the data in Worley's

teaching or otherwise naturally involves two different sets of data (data prior to reformatting and

after reformatting). Worley's data planarizer 908 reformatting the data as taught by Worley reads

over the claimed limitation of substitution and modification as claimed. On the contrary,

applicant's argues that reformatting data words is not equivalent to substituting. However such a

distinction is not reflected in the claims, and note that claims are interpreted in the broadest

reasonable and possible manner.

Claim Rejections - 35 USC § 102

2.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3.   Claims 1-6, 9-10, 15-18 and 20-25 are rejected under 35 U.S.C. 102(b) as being

anticipated by Worley III (USPN 6326980).

Regarding claims 1 and 18, Worley, III (USPN 6326980) teaches a digital display

system, a data processor*(Fig. 10 (1004, 1008, 926, 954), see fig. 10 in which a processing unit*

1004 controls transfer state machine 1008 which outputs via control buses (926, 954)), electro-

optic display*(Fig. 9 (914, 926, 928)*; and a display controller *(Fig. 9 (900))* for reducing power

consumption of an electro-optical image display *(Fig. 9 (900), a display driver circuit 900, col.*

4, lines 46-49, bits of a compound data words are arranged in portions of the compound data

words to minimize intensity differences between the respective portions, note that minimization

of intensity differences inherently involves reduction of power consumption), comprising: a

source of a set of image data words *(Fig. 9 (900, 902))* corresponding to individual pixels of an

image *(Fig. 9 (902), col. 9, lines 28-29, compound data generator 902 receives 8-bit binary-*

weighted data words); an output port *(Fig. 9 (914, 924, 926))* for making available to the electro-

optical image display a modified set of image data words corresponding to individual pixels of

the electro-optical image display *(Fig. 9 (914), col. 11, lines 15-18, output controller 914*

asserts control signals on LCD control bus 926, causing micro-LCD 928 to load the bits

asserted on data bus 924 onto the appropriate pixel cells.); and a mode control circuit *(Fig. 9*

(908), 924)) adapted to substitute for a selected subset of the set of image data words the image

data words from one or more contiguous pixels and to provide the resulting modified set of

image data words to the output port to be made available to the electro-optical image display

(Fig. 9 (908), col. 9, lines 43-50, Data planarizer 908 receives the compound data, via

compound data bus 936, in 10-bit compound data words, each 10-bits (Pr[0-9]) corresponding

to a gray scale value to be written to a particular pixel (r) of micro-LCD 928, such that the

data planarizer 908 accumulates the 10-bit gray scale data for 32 pixels and reformats the data

into 32-bit data words, each 32-bit word containing one bit from each of the group of 32 10-bit

compound data words, col. 9, lines 20-24, note that the driver circuit 900 transfers the

planarized compound data words, via 32-bit data output bus 924, along with control signals,

via LCD control bus 926, to a micro-LCD 928).

Regarding claim 20, Worley teaches a method for reducing power consumption of an

electro-optical image display *(Fig. 9 (900), a display driver circuit 900, col. 4, lines 46-49, bits*

of a compound data words are arranged in portions of the compound data words to minimize

intensity differences between the respective portions, note that minimization of intensity

differences inherently involves reduction of power consumption), comprising: providing a set

of image data words corresponding to individual pixels of an image *(Fig. 9 (900, 902), col. 9,*

lines 28-29, compound data generator 902 receives 8-bit binary-weighted data words);

substituting for a selected subset of the set of image data words the image data words from one

or more contiguous pixels *(Fig. 9 (908), col. 9, lines 43-50, Data planarizer 908 receives the compound data, via compound data bus 936, in 10-bit compound data words, such that the data planarizer 908 accumulates the 10-bit gray scale data for 32 pixels and reformats the data into 32-bit data words, each 32-bit word containing one bit from each of the group of 32 10-bit compound data words)*; and making available to the electro-optical image display the modified set of data words resulting from the substituting *(col. 9, lines 43-50 note that each 10-bits (Pr[0-9]) corresponding to a gray scale value is to be written to a particular pixel (r) of micro-LCD 928, col. 9, lines 20-24, the driver circuit 900 transfers the planarized compound data words, via 32-bit data output bus 924, along with control signals, via LCD control bus 926, to a micro-LCD 928)*.

Regarding claims 2 and 21, Worley teaches the electro-optical image display is a two-dimensional image display *(Fig. 9 (828), col. 10, lines 7-9, micro-LCD has 786,432 pixels ("1024x768))*.

Regarding claims 3 and 22, Worley teaches the electro-optical image display is a liquid crystal display/the making available is done in a format suitable for a liquid crystal display *(Fig. 9 (828), col. 10, lines 7-9, micro-LCD has 786,432 pixels ("1024x768))*.

Regarding claims 4 and 23, Worley teaches the electro-optical image display is a two-dimensional display *(Fig. 9 (828), col. 10, lines 7-9, micro-LCD has 786,432 pixels ("1024x768))*.

Regarding claims 5, 9 and 24, Worley teaches the selected subset of image data words comprises a subset of the image data words having a selected spatial periodicity *(Fig. 20 (2002, 2004, 2006), a field sequential data, col. 19, lines 25-39).*

Regarding claims 6, 10, and 25, Worley teaches the number of contiguous pixels whose image data words are substituted may be selectively determined *(col. 11, lines 51-61, first and second group of pixels).*

Regarding claim 15, Worley teaches the source of image data words comprises a memory and a memory controller *(Fig. 9 (946, 948, 910, 912), control buses (946, 948), frame buffers 910 and 912),* and the mode control circuit *(Fig. 9 (908, 924), data planarizer (908), data output bus (924))* comprises a display interface circuit *(Fig. 9 (924), data output bus (924), note that as shown in Fig. 9, the data output bus (924) is directed toward a micro-LCD (9128)).*

Regarding claim 16, Worley teaches an input port *(Fig. 9 (904, 906, 918, 920, 922), input controller 904, a control selector 906, input terminals 918, 920, and 922)* for receiving image information from a data processor for storing an image in the memory *(Fig. 9 (910, 912), col. 9, lines 55-59, note in Fig. 9 in which input terminals 918, 920, and 922 passing signals through input controller 904, which uses the signals to transfer planarized data from data*

planarizer 908, via 32-bit data bus 930 into frame buffers A 910 and B 912)).

Regarding claim 17, Worley teaches the input port *(Fig. 9 (904, 918, 920, 922, 906),*

input controller 904, a control selector 906, input terminals 918, 920, and 922) comprises a

host interface circuit *(Fig. 9 (906), a control selector (906))* for receiving data and providing that

data to the image data memory controller for storage in the memory *(Fig. 9 (910, 912), col. 10,*

lines 11-13, the transfer of data from data bus 930 into frame buffers 910 and 912 is also

controlled by input controller 904 in cooperation with control selector 906).

4.   Claims 19 and 28, is rejected under 35 U.S.C. 103 (a) as being unpatentable by Worley

III (USPN 6326980) in view of Aoki et al. (USPN 5650844).

Regarding claim 19, Worley does not teach a camera to provide image information to the

source of a set of image data words corresponding to individual pixels of the image.

Aoki et al. (USPN 5650844) on the other hand teaches as shown   a CCD camera 12 that

has a built-in CCD area sensor that measures the contrast of the LCD (Fig. 1 (12) (col. 4, lines

12-18).

It would have been obvious to one of ordinary skill in the art at the time the invention

was made to combine to combine Worley's display driver circuit (900) shown in Fig. 9 with

Aoki's CCD camera 12 as shown in Fig. 1, because the use of CCD camera 12 helps function

LCD panel image quality inspection as taught by Aoki et al (col. 4, lines 5-6).

Regarding claim 28, Worley teaches the source of image data words comprises a memory

and a memory controller *(Fig. 9 (900, 902))*.

Allowable Subject Matter

5.   Claims 7-8, 11, 13-14 and 26-27 objected to as being dependent upon a rejected base

claim, but would be allowable if rewritten in independent form including all of the limitations of

the base claim and any intervening claims.

Conclusion

6.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a). A shortened statutory period for reply to this final action

is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply

is filed within TWO MONTHS of the mailing date of this final action and the advisory action is

not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the

advisory action. In no event, however, will the statutory period for reply expire later than SIX
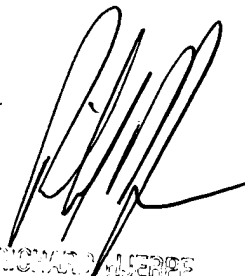
MONTHS from the mailing date of this final action.

7.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Abbas I. Abdulselam whose telephone number is 571-272-7685.

The examiner can normally be reached on Monday through Friday from 9:00 A.M. to 5:30 P.M.

        If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Richard Hjerpe, can be reached on 571-272-7691. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

        Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

                                            Abbas I Abdulselam
                                            Examiner
                                            Art Unit 2629
                                            December 26, 2007